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**L2**

**1 EP803012/PN□**

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L2 ANSWER 1 OF 1 WPINDEX COPYRIGHT 2001 DERWENT INFORMATION LTD

TI Polysiloxane-contg. treatment material for tissue paper softener - contg. liq. polyethylene glycol and/or glycerol , polysiloxane and water, for cosmetic tissues and make-up remover for improved softness.

AB WO 9608601 A UPAB: 19990503

A polysiloxane-contg. treatment material (I) for tissue paper prods., esp. in the form of a lotion, contains:

(A) 25-95 pts.wt. polyhydroxy cpd(s)., pref. polyethylene glycol(s) (PEG) which is/are liq. at room temp. and/or glycerol;

(B) 5-75 pts. wt. polysiloxane; and (w.r.t. 100 pts.wt. A+B)

(C) 0-35 pts.wt. water.

Also claimed is a process for the prodn. of tissue paper prods. in which the treatment material (I) is applied to the paper web in the screen/press section and/or the drying section of the paper machine, or after the drying section.

USE - Used for the treatment of tissue paper prods., esp. pocket tissues, cosmetic tissues, make-up removers, serviettes, toilet paper and kitchen tissue (claimed).

ADVANTAGE - The synergistic action of (A) and (B) produces a much softer tissue paper than polysiloxane or PEG and/or glycerol alone.

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PA (PWAH-N) PWA HYGIENEPAPIERE GMBH; (SCAD) SCA HYGIENE PAPER GMBH; (SCAD) SCA HYGIENE PROD GMBH

(19)



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(54) **VERFAHREN ZUR HERSTELLUNG VON TISSUEPAPIER UNTER VERWENDUNG EINES  
BEHANDLUNGSMITTELS**

PROCESS FOR PRODUCING TISSUE PAPER BY USING A TREATING AGENT

PROCEDE DE FABRICATION DE PAPIER MOUSSELINE AU MOYEN D'UN AGENT DE  
TRAITEMENT

(84) Benannte Vertragsstaaten:  
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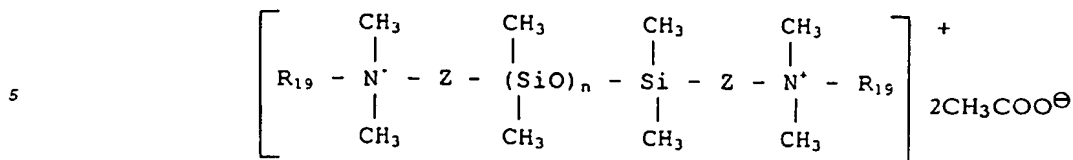
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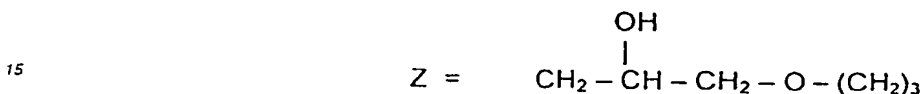
**EP-A- 0 347 153**      **EP-A- 0 688 901**  
**GB-A- 2 079 300**      **US-A- 4 133 921**  
**US-A- 4 950 545**      **US-A- 5 246 545**  
**US-A- 5 312 522**

**EP 0 803 012 B1**

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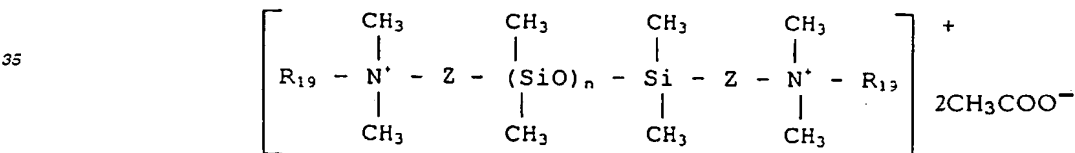
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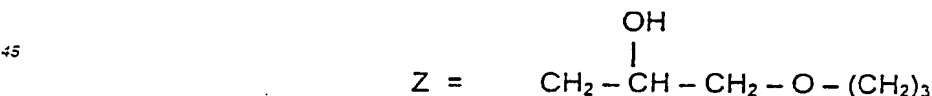
15 et R<sub>19</sub> est un groupe alkyle à chaîne longue en C<sub>12</sub>-C<sub>18</sub>, pour le traitement de produits en papier mousseline en particulier de mouchoirs, de serviettes cosmétiques, de serviettes de démaquillage, de papier hygiéniques ou de serviettes de table.

#### Claims

- 25 1. A process for manufacturing tissue paper products, characterised in that a treatment medium comprising polysiloxanes which comprises 25 to 95 parts by weight, preferably 30 to 90 parts by weight of at least one polyhydroxy compound, in particular at least one polyethylene glycol that is fluid at room temperature and/or glycerine, 5 to 75 parts by weight, preferably 10 to 70 parts by weight polysiloxane, and 0 to 35 parts by weight, preferably 1 to 30 parts by weight water in relation to 100 parts by weight of this mixture not including a treatment medium comprising 30 5 % by weight of a polysiloxane comprising quaternary amines having the following general formula



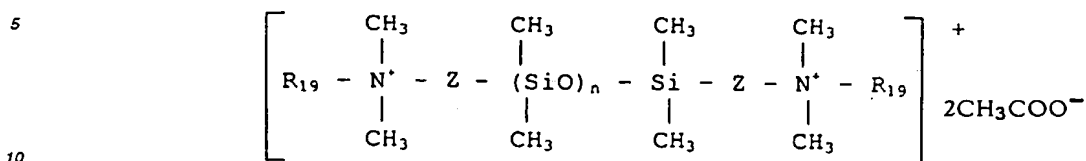
40 wherein



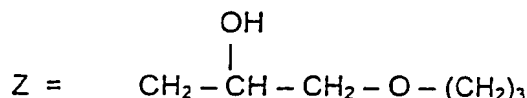
50 and wherein R<sub>19</sub> is a long-chain alkyl group having between 12 and 18 carbons, is applied in a quantity of 0.01 to 15% to the fibrous web or the "tissue sheet" inside the wire/press section and/or drier section, that is, at a fibre density of 20 to 97% with regard to the dry fibre weight of the sheet, and after application, the fibrous web undergoes a re-smoothing.

- 55 2. A process for manufacturing tissue paper products, characterised in that a treatment medium comprising polysiloxanes which comprises 25 to 95 parts by weight, preferably 30 to 90 parts by weight of at least one polyhydroxy compound, in particular at least one polyethylene glycol that is fluid at room temperature and/or glycerine, 5 to 75 parts by weight, preferably 10 to 70 parts by weight polysiloxane, and 0 to 35 parts by weight, preferably 1 to 30 parts by weight water in relation to 100 parts by weight of this mixture not including a treatment medium comprising

5 % by weight of a polysiloxane comprising quaternary amines having the following general formula



wherein

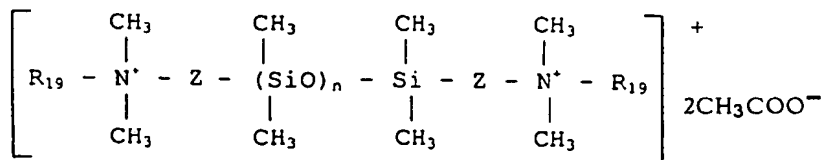


and wherein  $\text{R}_{19}$  is a long-chain alkyl group having between 12 and 18 carbons, is applied in a quantity of 0.01 to 15% to the fibrous web or the tissue sheet after the drier section in the tissue paper machine and in a particularly preferred manner, inside the combiner or inside the processing machine, and after application, the sheet undergoes a re-smoothing.

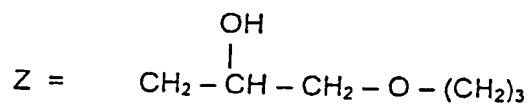
3. The process according to claim 2, characterised in that the polysiloxane-containing treatment medium is applied in a quantity of 0.05 to 10% at a fibre density of 35 to 97% in relation to the dry fibre weight of the single-ply sheet.
4. The process according to any of claims 1 to 3, characterised in that the tissue sheet is a multi-ply sheet and the treatment medium is applied in a quantity of 1 to 7% to at least one of the outer plies of the multi-ply sheet at a fiber density of more than 90% in relation to the dry fibre weight.
5. The process according to claim 4, characterised in that the treatment medium is applied in a quantity of 3 to 6% to the multi-ply tissue sheet on both outer plies.
6. The process according to any of claims 1 or 2, characterised in that the depositing of the treatment medium takes place in the tissue making machine by means of spray application onto the pope reel winder in order to produce a film of the treatment medium and to subsequently transfer it to the tissue sheet during the roll-up process.
7. The process according to claims 1 and 2, characterised in that the re-smoothing is carried out by means of at least one pass of the tissue sheet through a gap of a roller pair in which one roller having a steel surface is associated with an opposing roller having a steel, plastic, paper, or rubber surface, preferably a plastic surface.
8. The process according to claims 1 and 2, characterised in that the re-smoothing is carried out by means of a double passage of the tissue sheet through a gap of a roller pair in which first, a roller having a steel surface is associated with an opposing roller having a plastic surface and then, in mirror image fashion, a roller having a plastic surface is associated with an opposing roller having a steel surface.
9. The process according to any of claims 1 to 8, characterised in that the depositing of the treatment medium onto the fibrous web is carried out within the framework of a conventional tissue manufacturing process.
10. The process according to any of claims 1 to 8, characterised in that the depositing of the treatment medium onto the fibrous web is carried out within the framework of a through flow drying process or a TAD process.
11. The process according to claims 1 to 5, characterised in that one uses a treatment medium, comprising 30 to 70 parts by weight of at least one polyhydroxy compound, in particular at least one polyethylene glycol that is fluid at room temperature and/or a glycerine, 30 to 70 parts by weight polysiloxane, and 5 to 25 parts by weight water in

relation to 100 parts by weight of this mixture.

12. The process according to any of claims 1 to 5, characterised in that one uses a treatment medium comprising 5 to 75 parts by weight of at least one polysiloxane and 25 to 95 parts by weight of a polyethylene glycol that is fluid at room temperature.
13. The process according to claim 12, characterised in that one uses a treatment medium, comprising 10 to 70 parts by weight, in particular 40 to 60 parts by weight of at least one polysiloxane and 30 to 90 parts by weight, in particular 40 to 60 parts by weight of the polyethylene glycol.
14. The process according to any of claims 1 to 5, characterised in that one uses a treatment medium, comprising 5 to 75 parts by weight of at least one polysiloxane and 25 to 95 parts by weight glycerine.
15. The process according to claim 14, characterised in that one uses a treatment medium, comprising 10 to 70 parts by weight, in particular 40 to 60 parts by weight of at least one polysiloxane and 30 to 90 parts by weight, in particular 40 to 60 parts by weight glycerine.
16. The process according to any of claims 1 to 3, characterised in that one uses a treatment medium, wherein the polyhydroxy-compound comprises 20 to 80, preferably 30 to 70 parts by weight of the above-mentioned polyethylene glycol and 20 to 80 parts by weight, preferably 30 to 70 parts by weight of the above-mentioned glycerine.
17. The process according to any of claims 1 to 5 or 13 to 16, characterised in that one uses a treatment medium, wherein the polysiloxane has a viscosity of  $25 \times 10^{-6} \text{ m}^2/\text{s}$  to  $20,000,000 \times 10^{-6} \text{ m}^2/\text{s}$ .
18. The process according to claim 17, characterised in that one uses a treatment medium, wherein the polysiloxane is a polydimethylsiloxane which if necessary, has at least one betaine group, in particular a tetraalkyl ammonium group, in its side chain.
19. The process according to claims 17 or 18, characterised in that one uses a treatment medium, wherein the polysiloxane is a polyethersiloxane, in particular having average cloud points in the range from below  $25^\circ\text{C}$  up to  $71^\circ\text{C}$ .
20. The process according to any of claims 11 to 19, characterised in that one uses a treatment medium, which furthermore contains cosmetic substances with special properties, for example skin care substances and/or active substances for the skin based on plant extracts and/or scents.
21. The Process according to any of claims 11 to 20, characterised in that one uses a treatment medium, which furthermore contains auxiliary substances such as quaternary ammonium compounds and/or solubilizers and/or wet strength agents.
22. The use of a treatment medium comprising polysiloxanes which comprises 25 to 95 parts by weight, preferably 30 to 90 parts by weight of at least one polyhydroxy compound, in particular at least one polyethylene glycol that is fluid at room temperature and/or glycerine, 5 to 75 parts by weight, preferably 10 to 70 parts by weight polysiloxane, and 0 to 35 parts by weight, preferably 1 to 30 parts by weight water in relation to 100 parts by weight of this mixture not including a treatment medium comprising 5 % by weight of a polysiloxane comprising quaternary amines having the following general formula



wherein



and wherein  $R_{19}$  is a long-chain alkyl group having between 12 and 18 carbons for the treatment of tissue paper products, in particular handkerchiefs, cosmetic towels, makeup removal towels, napkins, toilet paper, and kitchen towels.